X. "On the Specific Resistance of Mercury." By R. T. GLAZE-
BROOK, M.A., F.R.S., Fellow of Trinity College, and T. C.
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in the Cavendish Laboratory, Cambridge. Received June
19, 1888.

(Abstract.)

The paper contains an account of experiments made to determine
the value of the resistance of a column of mercury, 1 metre long and
1 sq. mm. in cross section, in terms of the B.A. unit. The method
employed differed very slightly from that of Lord Rayleigh and
Mrs. Sidgwick ('Phil. Trans.,' 1883). Tubes of about 1, 2, and
3 sq. mm. in cross section were calibrated and filled with mercury.
They were then immersed in melting ice, and their resistance com-
pared with that of the B.A. standards, using Carey Foster's method
and the B.A. bridge. The length of the mercury column, occupying
nearly the whole of the tube, was measured, and the mass of the same
determined. From this the average cross section is obtained, and hence
the value of r, the resistance of a column 1 metre long, 1 sq. mm. in
cross section. The mercury used to find the cross section was with
few exceptions that which had been employed in finding the resistance.
The results of the measurements are given in Table I.

In the table, Column 1 gives the number of the tube, Column 2 the
number of the observation. L is the length of the tube, and a the
mean radius of the cross section, R the observed resistance in B.A.
units. The mean value of r found from the three 1 mm. tubes is
0·95354 B.A. units. The other four tubes of one-half and one-third
units respectively lead to the value $r = 0\cdot95344$ B.A. units. The
difference between the two is considerable, and reasons are given for
assigning more weight to the first value.

For an account of the experiments and of the small precautions
necessary to secure accuracy, reference must be made to the paper.

Table II gives a list of the various values which have been found
for r with the lengths of the column of mercury which, according to
the different observers, has a resistance of 1 ohm (10^9 C.G.S. units of
resistance). In combining our own observations we have assigned
weights to the various tubes inversely proportional to their diameters,
and we find as our final value

$$r = 0\cdot95352.$$

Table I.

No. of Tube.		L.	a.	R.	r.	Mean value of r from each tube.
VI.	1.	113·134	0·0586	1·000010	0·95358	0·95357
	2.	,,	,,	0·999949	0·95364	
	3.	,,	,,	0·999949	0·95353	
	5.	,,	,,	0·999915	0·95351	
	6.	,,	,,	0·999982	0·95357	
	8.	,,	,,	0·999955	0·95360	
VIII.	1.	127·438	0·0622	1·000133	0·95351	0·95354
	2.	,,	,,	1·000103	0·95349	
	3.	,,	,,	0·999996	0·95353	
	5.	,,	,,	1·000040	0·95357	
	7.	,,	,,	1·000036	0·95361	
II.	1.	101·904	0·0553	1·011926	0·95353	0·95349
	2.	,,	,,	1·011805	0·95340	
	3.	,,	,,	1·011810	0·95356	
	4.	,,	,,	1·011803	0·95346	
V.	1.	112·950	0·0829	0·499233	0·95334	0·95338
	2.	,,	,,	0·499215	0·95342	
IX.	1.	110·913	0·0820	0·500388	0·95344	0·95344
	2.	,,	,,	0·500333	0·95343	
I.	1.	91·723	0·0915	0·332535	0·95343	0·95344
	3.	,,	,,	0·332574	0·95346	
III.	1.	101·765	0·0968	0·329854	0·95345	0·95351
	2.	,,	,,	0·329867	0·95357	

Table II.

Observer.	Date.	Value for r in B.A. units.	Value of ohm in centimetres of mercury at 0°.
Lord Rayleigh and Mrs. Sidgwick	1883	0·95412	106·23
Mascart, Nerville, and Benoit	1884	0·95374	106·33
Strecker.........................	1885	0·95334	..
L. Lorentz.......................	1885	0·95388	105·93
Rowland.........................	1887	0·95349	106·32
Kohlrausch	1888	0·95331	106·32
Glazebrook and Fitzpatrick..........	1888	0·95352	106·29

The paper contains a discussion of the above results. It is shown that probably Lord Rayleigh's value of r may be too high by as much as 0·0002, in consequence of the fact that the mercury in his terminal cups was 5° or 6° C., but no complete explanation of the differences between his result and those of Rowland, Kohlrausch, and ourselves, has been found. The difficulty of working with tubes such as those used by the Lorentz, 1—2 metres in length, and 1, 2, and 3 cm. in diameter, may perhaps account for his value for the ohm, viz., 105·93.

XI. "Researches on the Structure, Organisation, and Classification of the Fossil Reptilia. VI. On the Anomodont Reptilia and their Allies." By H. G. SEELEY, F.R.S. Received June 20, 1888.

(Abstract.)

The author examines the structure of the skull in the Dicynodontia, and discusses the interpretations of its elements and affinities given by Sir Richard Owen, Professor Huxley, and Professor Cope, and arrives at the conclusion that the interpretation of the bones of the palate may be varied. The quadrate bone is found, though it is absent from many specimens owing to loose articulation, and the malleus is recognised as a normal element in the skull, which articulates with the quadrate and is free, except at its extremities. The palatine bones are internal to the pterygoids, and the pterygoids extend forward to the maxillary. The columella is found in more than one specimen. Many new specimens are described which further elucidate the structure of the skull. The first of these shows that the upper part of the foramen magnum is formed

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